

Year in Review
1999-2000





Heal the Bay

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Heal the Bay is a non-profit environmental organization dedicated to making Santa Monica Bay and Southern California coastal waters safe and healthy again for people and marine life. We use research, education, community action and policy programs to achieve this goal.

Funded by a grant from the Ford Motor Company



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Heal the Bay's 10th Annual Year in Review provides essential water quality information to the millions of people who swim, surf, or dive in Southern California coastal waters. Essential reading for ocean users, the report card grades over 250 locations on an A-F scale based on the risk of adverse health effects to humans. The grades are based on daily and weekly bacterial pollution levels in the surf zone. The program has developed from an annual review to weekly updates of Los Angeles County beaches to weekly updates of beaches in three additional counties — all available in print and at our web site (www.healthebay.org).

The 1999-2000 Year in Review demonstrates that most beaches had very good dry weather water quality with 174 of 263 (66%) locations receiving “A” grades. Also, there were 41 “B’s,” 16 “C’s,” 17 “D’s” and 15 “F’s.” A number of Southern California beaches vied for the “Beach Bummer” crown this year (the monitoring location with the poorest dry weather water quality). The top 10 finalists were: Surfrider Beach in Los Angeles County, (10th), Jalama Beach in Santa Barbara County (9th), East Beach at Mission Creek in Santa Barbara County (8th), North Doheny Beach at Dana Point in South Orange County (7th), Doheny Beach (south of San Juan Creek) at Dana Point in South Orange County (6th), the San Juan Creek ocean interface at Dana Point in South Orange County (5th), Avalon Beach at the Pier on Catalina Island (4th), Arroyo Quemada in Santa Barbara County (3rd) and Cabrillo Beach-harborside at the lifeguard tower in Los Angeles County (2nd). And the winner of the dubious Southern California “Beach Bummer” crown is Channel Islands Harbor Beach Park (Kiddie Beach) in Ventura County. Kiddie Beach won the crown over Cabrillo Beach and Arroyo Quemada because 71% of the monitoring days exceeded at least one fecal bacteria indicator, compared to 61% and 55% respectively for the other two locations.



As for wet weather water quality, there was a tremendous disparity between the sunny (dry) and rainy (wet) season grades, demonstrating that beachgoers need to be wary when entering the water during the rainy season. Very few beach locations in Southern California escaped the influence of polluted stormwater runoff. For example, of the 263 locations monitored, only 66, or 25%, received good-to-excellent water quality marks (42 “A’s” and 24 “B’s”) during wet weather, considerably lower than the dry weather marks. There were 196 locations that received fair-to-poor water quality marks (18 “C’s,” 16 “D’s” and 162 “F’s”). Overall, 62% of the monitoring locations received a grade of “F” during wet weather compared to only 6% during dry weather.

Heal the Bay strongly commends the many agencies that continued their monitoring programs beyond Assembly Bill 411’s (Wayne — San Diego) required dates of April through October. (California coastal counties that have 50,000 annual visitors or more to storm drain-contaminated local beaches are required to maintain a comprehensive ocean water quality monitoring program

for bacteria indicators. Hence, those counties affected will be required to have similar monitoring programs subjected to statewide bathing water standards.) This action provided approximately 20 additional weeks of water sampling, which meant beachgoers (namely surfers going out for the winter swells) could continue receiving information about water quality and have the ability to make better health decisions about which beaches to visit.

This year, Heal the Bay is proud to announce the addition of San Diego County’s water quality monitoring data to the Beach Report Card. Beginning in June 2000, the Southern California Beach Report Card will now cover over 350 beaches from Santa Barbara County to the Mexican border. Designed to educate the public on water quality information obtained from the various counties, the enhanced report card is eas-

- Channel Islands Harbor Beach Park (Kiddie Beach), Ventura
- Cabrillo Beach-harborside at lifeguard tower, San Pedro
- Arroyo Quemada, Santa Barbara
- Avalon Beach (under the Pier), Catalina Island
- San Juan Creek interface, Dana Point
- Doheny Beach (south of San Juan Creek), Dana Point
- North Doheny Beach, Dana Point
- East Beach at Mission Creek, Santa Barbara
- Jalama Beach at Jalama Creek, north of Santa Barbara
- Surfrider Beach at the breach, Malibu



ily available via Heal the Bay's web site (featuring an interactive Southern California map), fax or phone.

With the continued expansion of the Beach Report Card, Heal the Bay hopes that Southern California beachgoers will use the information like the SPF in sunblock: They should decide what they are most comfortable with in terms of relative risk, and then make the necessary decisions to protect their health. The public has the right to know the water quality at their favorite beaches, and Heal the Bay is proud to provide Southern Californians this information in an easy-to-understand format.

The Beach Report Card is based on the routine monitoring of beaches completed by local agencies. Water samples were analyzed for bacteria that indicate pollution from numerous sources, including fecal waste. The higher the grade a beach receives, the lower the risk of illness to ocean users. The report is not designed to measure the amount of trash or toxins found at Southern California beaches.

Beach users should not swim or surf within 100 yards of any flowing storm drain or in any coastal water during and for three days after a rainstorm. Storm drain runoff — one of the largest sources of pollution to local beaches — flows untreated to the coast and is often contaminated with motor oil, animal waste, pesticides, yard waste and trash. After a rain, indicator bacteria counts usually far exceed health criteria in the California Department of Health Services' beach bathing water quality regulations.

For more information, please log on to *www.healthebay.org*, or call 800 HEAL BAY.



When Heal the Bay started the Beach Report Card in 1990, the public knew little about the public health risks of swimming in runoff polluted waters. In fact, the public knew little about the water quality at any of their favorite beaches. Water quality at the beach was only an issue in the eyes of the public when there were sewage spills. Much work has been completed over the last 10 years to address the issue of urban runoff at local beaches: numerous studies identifying fecal pollution within storm drains; a Los Angeles County regional beach water quality monitoring program; the Santa Monica Bay Restoration Project's Epidemiological (Epi) Study; and statewide beach bathing water standards (AB 411, Wayne — San Diego).

To this end, Heal the Bay is proud to present its 10th Annual Year in Review of the Beach Report Card. Compared to the first effort in 1990, the Beach Report Card has grown beyond Los Angeles County and is now a Southern California-wide educational program. As such, the report card is essential reading for the 100 million surfers, swimmers, divers and families who visit Southern California beaches each year.

The 1999–2000 report highlights individual county monitoring programs, the results of their shoreline monitoring efforts over the last 12 months (April 1999–March 2000) and a sewage spill summary. Information from the analysis was used to develop a database upon which future recommendations for solving water quality problems at the beach will be based.

Also, the report includes an update on the following issues that continue to affect Southern California's beaches: federal and state legislation; national beach bathing water standards; the USEPA's BEACH (Beaches Environmental Assessment, Closure and Health) program; AB 538 and AB 411; and the Southern California Coastal Waters Research Project's and Heal the Bay's Storm Drain Plume Dispersion Study. These updates are followed by Heal the Bay's recommendations for improving water quality and public education in the coming year.



An exciting addition to this year's report is the inclusion of San Diego County's monitoring data into the Beach Report Card. Starting in June, the Beach Report Card will cover 353 beaches from Santa Barbara County to the Mexican border. Heal the Bay is expanding the Beach Report Card with the hope that Southern California beachgoers will use the information before they go to the beach in order to better protect their health and the health of their families. The weekly Beach Report Card is available in print and at the Heal the Bay web site, www.healthebay.org.

Evolution of the Beach Report Card — The first report card was published 10 years ago. For the first four years, Heal the Bay published the report card on an annual basis. People clamored for more timely reporting, and Heal the Bay obliged. With the help of the three local monitoring agencies (Los Angeles Environmental Monitoring Division, Los Angeles County Department of Health Services, and the Los Angeles County Sanitation Districts), Heal the Bay began publishing monthly reports between annual report cards. However, demand for even more timely information from the public continued. In June 1998, Heal the Bay (with the continued cooperation of local monitoring agencies) responded by providing the public with weekly report cards every Friday afternoon, just in time for the weekend. The weekly report card provides more timely and accurate information to protect public health than ever before. Subsequently, the public requested the expansion of the Beach Report Card to areas outside of Los Angeles County. With the passage of Assembly Bill 411 (Wayne — San Diego) — a law that required the development of statewide bathing water standards and mandatory monitoring of popular beaches — Heal the Bay was finally able to respond to that request. With the assistance of numerous Southern California health and monitoring agencies, Heal the Bay expanded the program in June 1999 to include all of Southern California, except San Diego County. In June 2000, Heal the Bay will publish the first Beach Report Card for San Diego County. The continued goal is for every Friday–Saturday television, radio, and print weather or surf report to include information from the weekly Beach Report Card similar to the way the smog report is included as part of the weather.

When going to the beach, the report card should be used like the SPF in sun-block: Beachgoers should determine what they are comfortable with in terms of relative risk, and then make the necessary decisions to protect their health.



Santa
Barbara
County

Ventura
County

Los Angeles
County

Orange
County

San Diego
County

MEXICO

Santa
Catalina
Island





What Type of Water Quality Pollution is Measured?

Runoff from creeks, rivers or storm drains, is the largest source of pollution to Southern California beaches. Runoff may contain toxic heavy metals, pesticides, petroleum hydrocarbons, animal waste, trash and even human sewage. The Beach Report Card only includes an analysis of shoreline (ankle-deep) water quality data collected by various county and city public agencies for fecal bacteria. At present, the report card contains no information on toxins or trash at the beach.

Currently, there are over 250 shoreline monitoring locations analyzed in the Beach Report Card starting at Guadalupe Dunes in Santa Barbara County moving south to San Clemente (Las Palmeras) in Orange County. Shoreline water samples are analyzed for three indicator bacteria: total coliform, fecal coliform and enterococcus. Total coliform, which contains coliform of all types, originates from many sources, including soil, plants, animals and humans. Fecal coliform and enterococcus bacteria are found in the fecal matter of mammals and birds. This fecal matter does not necessarily come from humans, although prior studies demonstrated that there is a significant possibility of sewage contamination in Santa Monica Bay storm drain runoff at any given time.

Most sample sites were selected by monitoring health and regulatory agencies to specifically target popular beaches and/or those beaches frequently affected by storm drain runoff. Water quality samples were collected by the appropriate agency at a minimum frequency of once a week.

The amount of certain types of bacteria present in runoff, and consequently in the surf zone, is the only indication of whether or not a beach is safe for recreational contact. Indicator bacteria are not usually the microorganisms that cause



bather illness; however, their concentrations may indicate the presence of other pathogenic microorganisms (bacteria, viruses, protozoa) that do pose a health risk to humans. This link was confirmed in the groundbreaking 1996 epidemiology study conducted by USC, the Sanitation District of Orange County, the City of Los Angeles, and Heal the Bay, under the auspices of the Santa Monica Bay Restoration Project (SMBRP).

Water Quality Thresholds

Concentrations of total coliform, fecal coliform and enterococcus bacteria are typically measured in colony-forming units (cfu) per 100 milliliters of ocean water. Colony-forming units are the number of bacteria in a given volume that are capable of reproduction. The Beach Report Card methodology utilizes four thresholds (specific levels of exposure that may increase health risks) for each bacteria indicator and one bacteria ratio, based on standards set forth in AB 411 and findings from the 1996 SMBRP Epi study on swimmers at urban runoff polluted beaches. The bacterial indicator exceedance thresholds can be found in Appendix A.

Heal the Bay's Grading System

Before Heal the Bay developed the grading system, including the four threshold values for the Beach Report Card, technical staff solicited feedback from scientists, health officials, and regulators in the region. Based on their feedback, Heal the Bay modified the Beach Report Card grading system to respond to a number of their concerns. Fecal coliform was added as an indicator because of the new statewide monitoring standards requirement under AB 411. In addition, the modified methodology is weighted more strongly towards the weekly monitoring system that is now widely used throughout California as required by AB 411 rather than the daily monitoring programs required under some discharge permits for sewage treatment plants. Also, the methodology takes into consideration the magnitude of an exceedance above indicator thresholds. Furthermore, those beaches that exceed multiple indicator thresholds in a given day received lower grades than those beaches that exceeded just one indicator threshold.

As stated earlier, the grades are based on the frequency and magnitude of meeting or exceeding thresholds (listed in Appendix A) over a 28-day period.



The grades are based on a 100-point scale. For each monitoring location, points are subtracted from a perfect score of 100 depending upon where the data falls within the designated criteria. As the magnitude of bacteria density exceedance increases, the amount of points subtracted increases. The threshold points and grading system can be found in Appendix A.

Water quality drops dramatically during and immediately after a rainstorm, but often rebounds to its previous level within a few days. For this reason, wet weather data was analyzed separately in order to avoid artificially lowering a location's grade for the entire month. A wet weather data point is any sample collected during or within three days of a significant rainstorm. Heal the Bay's annual report card and weekly report cards utilized a definition of a significant rainstorm as precipitation more than or equal to one tenth of an inch (>0.1 ").

What Does This Mean to the Beach User?

Simply put, the higher the grade a beach receives, the better the water quality at that beach. The lower the grade, the greater the health risk. Potential illnesses vary depending on the particular threshold exceeded, but they can include stomach flu, ear infection, upper respiratory infection and major skin rash (full body). The known risk of contracting illnesses associated with each threshold are based on a one-time, single day of exposure (head immersed while swimming) in polluted water SMBRP's Health Effects Study, May 1996). Increasing frequency (number of visits to a "polluted" beach) or magnitude of bacteria densities (e.g., swimming during wet weather) significantly increases ocean users' risk of contracting any one of a number of these illnesses.

It is important to note, the grades derived for the Southern California Beach Report Card do not represent real-time water quality conditions because of the shortcomings of analytical methods and the need for agencies to ensure that their data is accurate. The report card is designed to give the beachgoer historical information on the water quality at a given beach. The public, in turn, can make informed decisions about which beach to visit. Heal the Bay's web site includes the most current information available from county health departments on sewage spills and beach closures.



Why Not Test for Viruses?

Although virus monitoring is incredibly useful in identifying sources of fecal pollution, there are a number of drawbacks. There have been tremendous breakthroughs in the use of gene probes to analyze water samples for virus or human specific bacteria, but currently these techniques are expensive, highly technical and not very quantitative. Therefore, indicator bacteria monitoring is currently the most timely and most cost-effective method for protecting the health of beachgoers. There are two virus monitoring techniques for analyzing water samples, genetic and cultured. The genetic technique for detecting viruses can be completed in less than a day and is very sensitive to detecting a wide variety of viral pathogens. However, the test is extremely expensive (up to \$1,000 per sample) and the results do not accurately quantify the number of viruses per unit volume or provide information on whether or not the virus is infectious. The culture technique for detecting viruses is less costly (\$400 per sample) and can confirm whether or not a virus is infectious. Unfortunately, this technique is less sensitive in detecting viruses and much slower in obtaining results (up to 6 weeks) unlike bacterial indicator analyses which only require 18–48 hours. Finally, for every one water sample analyzed for viruses, 35–50 water samples can be analyzed for bacterial indicators at the same cost.

Overall, virus monitoring is expensive and no health standards exist for viruses in ocean waters, so understanding the results of the viral analysis and how it relates to human health can be difficult. Many researchers are working on virus detection techniques that can provide quantitative information, determine virus infectivity, and can be used easily and cost effectively. In the meantime, indicator bacteria will continue to be the focus of beach monitoring programs.

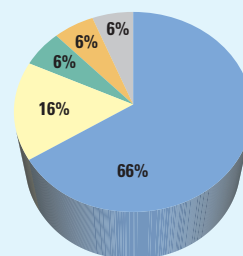


Southern California

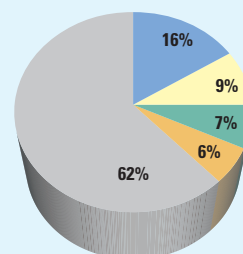
The overall dry weather water quality at Southern California beaches this year was very good, due primarily to drought conditions throughout most of 1999. When rainfall is low, storm drain flows are reduced and even eliminated during the summer months. Beachgoers at most locations had a lot of reasons to be at the beach, namely 147 straight sunny and dry days, and they enjoyed good-to-excellent water quality. Of the 263 water quality monitoring locations throughout Southern California, 215, or 82%, of the monitoring locations during dry weather received good-to-excellent water quality marks (174 "A's" and 41 "B's"). There were 48 locations that received fair-to-poor water quality marks (16 "C's," 17 "D's" and 15 "F's").

A number of Southern California beaches vied for the "Beach Bummers" crown this year (the monitoring location with the poorest dry weather water quality). The top 10 finalists were: Surfrider Beach in Los Angeles County (10th), Jalama Beach in Santa Barbara County (9th), East Beach at Mission Creek in Santa Barbara County (8th), North Doheny Beach at Dana Point in south Orange County (7th), Doheny Beach (south of San Juan Creek) at Dana Point in south Orange County

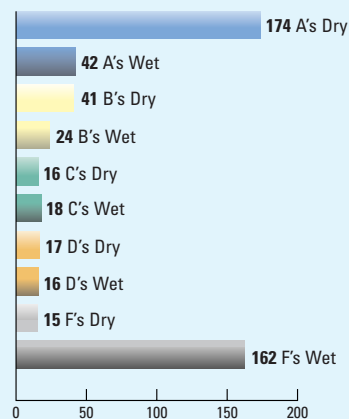
■ = A ■ = B ■ = C ■ = D ■ = F



Dry weather grades



Wet weather grades



Overall total combined dry and wet weather grades for 1999-2000.



(6th), the San Juan Creek ocean interface at Dana Point in south Orange County (5th), Avalon Beach at the Pier on Catalina Island (4th), Arroyo Quemada in Santa Barbara County (3rd), and Cabrillo Beach-harborside at the lifeguard tower in Los Angeles County (2nd). And the winner of the dubious Southern California "Beach Bummers" crown is Channel Islands Harbor Beach Park (Kiddie Beach) in Ventura County. Kiddie Beach won over Cabrillo Beach and Arroyo Quemada because 71% of the monitoring days exceeded at least one bacteria indicator, compared to 61% and 55% respectively for the other two locations.

As for wet weather water quality, there was a tremendous disparity between the sunny (dry) and rainy (wet) season grades this year, demonstrating that beachgoers need to be wary when entering the water during the rainy season. This polarity in water quality is why Heal the Bay and public health agencies recommend that no one swim in the ocean during and for at least three days after a significant rainstorm (> 0.1 "). Very few beach locations in Southern California escaped the influence of polluted stormwater runoff. For example, of the 263 locations monitored, only 66, or 25%, of them received good-to-excellent water quality marks (42 "A's" and 24 "B's") during wet weather, considerably lower than the dry weather marks. There were 196 locations receiving fair-to-poor water quality marks (18 "C's," 16 "D's" and 162 "F's"). Overall, 62% of the monitoring locations received a grade of "F" during wet weather compared to only 6% during dry weather.

Heal the Bay strongly commends the many agencies that continued their monitoring programs beyond the AB 411 required dates of April through October. This action provided approximately 20 additional weeks of water sampling, which meant beachgoers (namely surfers going out for the winter swells) could continue receiving information about water quality and have the ability to make better health decisions about which beaches to visit.



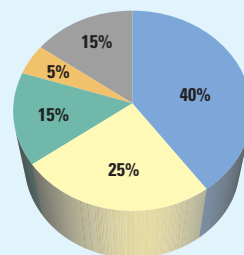
SANTA BARBARA

The County of Santa Barbara, Environmental Health Agency monitors approximately 20 locations on a weekly basis, from as far upcoast as Guadalupe Dunes south of the Santa Maria River (outside the City of Guadalupe) to a downcoast location of Rincon Beach, north of the creek. Most samples are collected 25 yards north or south of the mouth of a storm drain or creek.

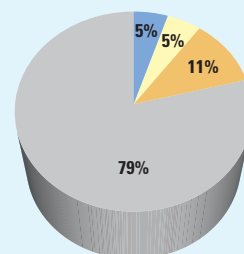
Overall, dry weather water quality at beaches in Santa Barbara County was good at most beaches. Of the 20 water quality monitoring locations, 13 locations received good-to-excellent water quality marks (eight “A’s” and five “B’s”). The cleanest beaches were at locations such as Guadalupe Dunes, Gaviota State Beach, El Capitan State Beach, Sands and the stretch of beaches from East Beach at Sycamore Creek to Rincon Beach. There were seven locations that received fair-to-poor water quality marks (three “C’s,” one “D” and three “F’s”). The four biggest problem beaches, from north to south, were: Jalama Beach, Arroyo Quemada, Arroyo Burro Beach and East Beach at Mission Creek.

During wet weather, 15 of the 19 Santa Barbara locations monitored received an “F” for water qual-

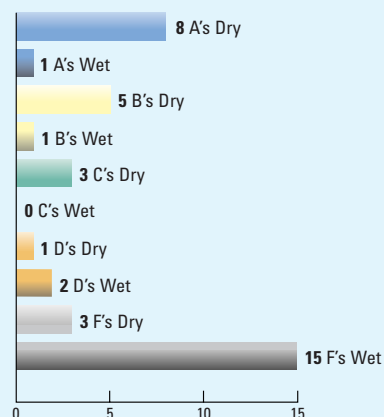
■ = A ■ = B ■ = C ■ = D ■ = F



Dry weather grades



Wet weather grades



Total combined dry and wet weather grades for Santa Barbara County.



ity. Only two monitoring locations received an “A” or “B,” Guadalupe Dunes and Sands at Coal Oil Point. Once again, with some of the largest waves occurring during wet weather, these results should serve as a warning to surfers who enter the water, rain or shine.

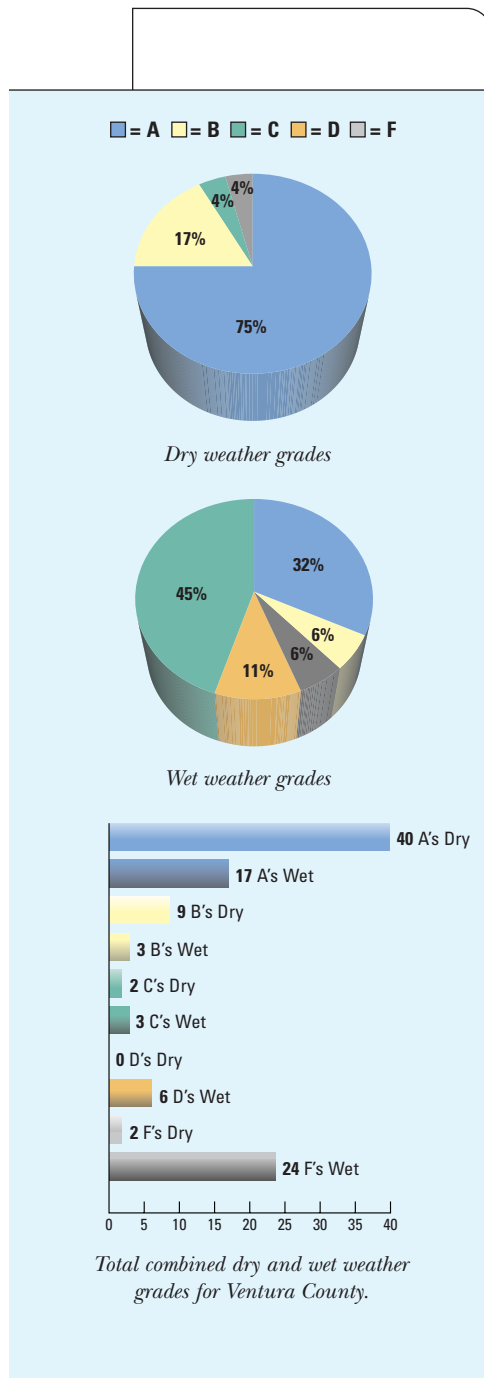
There were no reported sewage spills in Santa Barbara County for the year.

VENTURA

The County of Ventura, Environmental Health Division monitors approximately 53 locations on a weekly basis, from as far upcoast as Rincon Beach south of the creek (near the Santa Barbara County line) to a downcoast location of Staircase Beach, north end of Leo Carrillo State Beach. Most samples are collected between 25 to 50 yards north or south of the mouth of a storm drain or creek.

For the most part, overall water quality at beaches throughout Ventura County was excellent. Of the 53 water quality monitoring locations, 49 locations received very good-to-excellent water quality marks (40 “A’s” and nine “B’s”). There were only four locations that received fair-to-poor water quality marks (two “C’s” and two “F’s”). Ironically, the two beaches intended to be safer for visitors than beaches along the coast — Channel Islands Harbor at Hobie Beach and Channel Islands Harbor at Kiddie Beach — had the poorest water quality. The other area of concern is Ormond Beach at both the J Street drain and north of the Oxnard Industrial drain. (Both of these locations received “C’s.”)

Fairing better than most counties this past rainy season, Ventura County still could not escape the stark contrast in water quality between dry and wet weather. Of the 53 monitored locations, 20 beaches





(38%) received very good-to-excellent water quality marks (17 “A’s” and three “B’s”) during wet weather compared to 92% during dry weather. There were 33 locations that received fair-to-poor water quality marks (three “C’s,” six “D’s” and 24 “F’s”).

This past year (April 1999–March 2000) Ventura County had six sewage spills that led to beach closures. Four of the six spills took place in the Ventura Harbor and accounted for a majority of the overall sewage discharged (27,800 gallons out of 28,450 gallons). A major spill not included in the above totals was the City of Thousand Oaks’ discharge of 1.7 million gallons of non-chlorinated tertiary treated sewage into Conejo Creek on March 31, 2000. The reason for its exclusion in this annual report (and future reports) was that there was never a beach closure. Why? City officials notified the Environmental Health Division approximately five days later, well after the spill had occurred and ceased. The usual sewage spill protocol is to close the beach until the discharge has been stopped, and to keep the beach closed for a minimum of 72 hours after the spill has ceased. In this case, the local health officer was not notified until the spill had dissipated. However, the Environmental Health Division proceeded with a notification to the public about the potential health risk of entering the water. Unfortunately, this was too late for those people that entered the water between April 1–5, unnecessarily exposed to pathogens.

LOS ANGELES

There are four agencies within the County of Los Angeles that contribute monitoring information to Heal the Bay’s Beach Report Card: the City of Los Angeles’ Environmental Monitoring Division at the Hyperion Sewage Treatment Plant, the Los Angeles County Department of Health Services, the Los Angeles County Sanitation Districts and the City of Long Beach, Environmental Health Division. The City of Los Angeles’ Environmental Monitoring Division at the Hyperion Sewage Treatment Plant monitors 20 locations on a daily basis. The Los Angeles County Department of Health Services monitors 38 locations on a weekly basis. The Los Angeles County Sanitation Districts monitor eight locations, six of which are monitored daily and two weekly. And finally, the City of Long Beach,



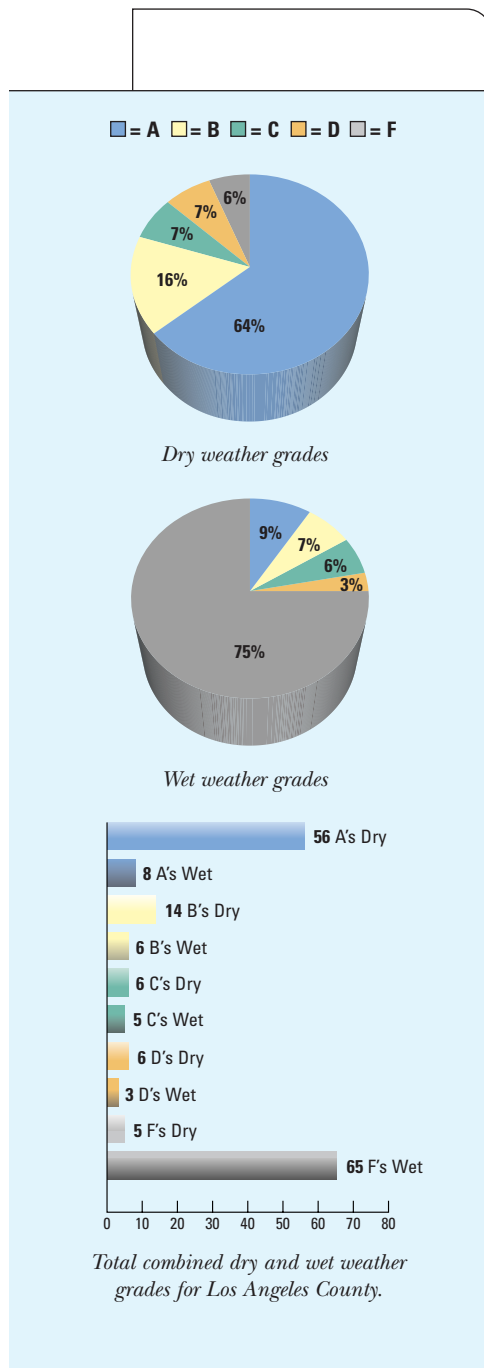
Environmental Health Division monitors approximately 21 locations on a weekly basis. Most samples collected are between 25 and 50 yards north or south of the mouth of a storm drain or creek.

Water quality at most Los Angeles County beaches was very good. Of the 87 water quality monitoring locations, 70 (80%) received good-to-excellent water quality marks (56 “A’s” and 14 “B’s”). There were stretches of beaches that had great water quality for beachgoers last summer, such as Leo Carrillo to Malibu

Point; Topanga Beach to Santa Monica Beach at Arizona (the exception being Will Rogers Beach at Santa Monica Canyon); the Venice City Beaches; Dockweiler Beach at Ballona through the South Bay to Cabrillo Beach — oceanside; Long Beach City Beach at 5th Place to Long Beach City Beach at 72nd Place (the exception being Molino Av.); and most swimming locations within Alamitos Bay.

There were 17 locations that received fair-to-poor water quality marks (six “C’s,” six “D’s” and five “F’s”). Beaches that received poor grades include: Cabrillo Beach — harborside at the lifeguard tower, Surfrider Beach in Malibu, Big Rock Beach in Malibu, Will Rogers Beach at Santa Monica Canyon, Santa Monica Pier on the southside, Mothers’ Beach in Marina del Rey, Long Beach City Beach at 3rd Place, and Avalon Beach (underneath Green Pleasure Pier) on Catalina Island.

Like every other county, Los Angeles County had very poor water quality during wet weather. Of the 87 monitored locations, 14 beaches (16%) received very good-to-excellent water quality marks (eight “A’s” and six “B’s”) during wet weather compared to the 80% (73 beaches) during dry weather. During wet weather, 84% of the monitored locations received a fair-to-poor water quality grade, and a whopping 75% of the beaches received an





"F." The breakdown of the fair-to-poor water quality marks were as follows: five "C's," three "D's" and 65 "F's."

Heal the Bay analyzed trends for both dry and wet weather water quality for 61 Los Angeles County beaches (excluding Long Beach and Catalina — 1999 new additions) to determine how this year's water quality fared compared to the average over the previous six years. The analysis included two different categories: the average number of "A's" and "F's" over the last six years compared to this year; and the average number of very good-to-excellent grades ("A" or "B") and of fair-to-poor grades ("C," "D" or "F") over the last six years similar to this year.

Dry weather water quality improved this year compared to the previous two years (which were impaired by 1998's El Niño rains), with an increase in the number of "A's" (five) and a decrease in the number of "F's" (two). The six-year average for the number of "A's" and "F's" during dry weather was 43 and five respectively, compared to this year's marks of 39 and three. The number of very good-to-excellent grades and of fair-to-poor grades for the six-year average was 50 and 11 respectively, compared to this year's marks of 48 and 12.

The trends analysis for wet weather results witnessed a continued downward spiral: another year of poor water quality during wet weather. The six-year average for the number of "A's" was 16 compared to this year's seven. Similarly, the six-year average for the number of "F's" was 24 compared to this year's 39. In addition, this year's total number of "F's" was the highest total over the previous six years ('95 — 24, '96 — 32, '97 — 29, '98 — 29 and '99 — 22). Finally, the six-year average number of very good-to-excellent grades relative to the number of fair-to-poor grades was 20 and 41, respectively, compared to this year's 13 and 47.

For the fourth year in a row, Heal the Bay analyzed data collected for 20 nearshore monitoring locations (many of which are popular within the diving community) in Santa Monica Bay and Los Angeles County coastal waters from April 1999–March 2000. Samples were collected by the City and County of Los Angeles at a 30-foot deep contour of the Bay or at the edge of a kelp bed (where present), both at surface (0.5 meters below the surface) and at depth (within 2 meters of the sea floor). The City of Los Angeles monitors 11 locations, from Westward Beach to



Redondo Beach, on a weekly basis, and the Los Angeles County Sanitation Districts monitors nine locations from Malaga Cove to Cabrillo Beach (oceanside) twice a week. All 20 monitoring locations sampled are monitored for three indicator bacteria (total coliform, fecal coliform, and enterococcus).

Similar to previous year's results, nearshore water quality for this year at the 20 monitored locations was generally excellent during dry weather. In fact, divers had to smile at this year's near 20/20 results (20 "A's" for 20 monitoring locations) during dry weather for nearshore surface monitoring. There were 19 monitoring locations that received an "A" grade, with Ballona Creek receiving a "B" for the third straight year. Given that the Ballona Creek monitoring site is located near the largest, and the most polluted, storm drain that flows year-round to Santa Monica Bay, it is surprising that the location even received a "B" grade.

Nearshore water quality at the surface during wet weather this year was poorer than last year's grades for wet weather. Six of the 20 locations did not receive an "A" or "B" and unlike last year (where there was one "F"), this year saw five "F's." Those locations were: Santa Monica Beach at Pico/Kenter, Venice Pier, Ballona Creek, Dockweiler at Gillis Rocks and Dockweiler at D & W. Not surprisingly, most locations that failed to receive a grade of "B" or higher, both last year and this year, are near subwatersheds that drain heavily urbanized areas.

Once again divers had reason to smile at this year's 20/20 results during dry weather for nearshore depth monitoring. As for wet weather, only three locations did not receive an "A" or "B" grade: Ballona Creek ("F"), Dockweiler at Gillis Rocks ("F") and Fish Harbor (280 Marina Way) in Redondo Beach ("D").

Los Angeles County led all counties in the volume of sewage discharged to the coast. Of the eight sewage spills this past year (April 1999–March 2000), six were major spills (> 10,000 gallons), discharging an approximate 1,936,600 gallons of sewage into receiving waterbodies. These spills all led to beach closures. Not included in the above total were four spills totaling 15,805 gallons into the Los Angeles River and two spills totaling 220,800 gallons into the Los Angeles Harbor.

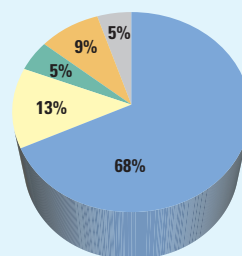


ORANGE COUNTY

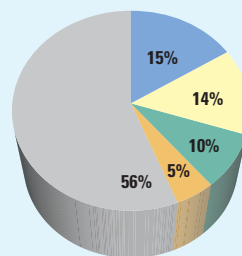
There are four agencies within Orange County that contribute monitoring information to Heal the Bay's Beach Report Card: the Aliso Water Management Agency, the Orange County Environmental Health Division, the County Sanitation Districts of Orange County and the South East Regional Reclamation Authority (SERRA). The Aliso Water Management Agency monitors 16 locations on a weekly basis. The Orange County Environmental Health Division monitors 95 locations (of which 53 locations are covered in the Beach Report Card) on a weekly basis. The County Sanitation Districts of Orange County monitor 17 locations twice a week. And finally, SERRA monitors approximately 17 locations on a weekly basis. Samples collected at beaches affected by a flowing storm drain, creek or river are usually sampled at a distance of 83 yards north or south of the discharge.

Overall, water quality at most beaches in Orange County was very good. Of the 103 water quality monitoring locations covered by the Beach Report Card, 83 (81%) received very good-to-excellent water quality marks (70 "A's" and 13 "B's"). Similar to Los Angeles County, Orange County had stretches of beaches with great water quality, such as Seal Beach at 14th Street to Huntington City Beach at Jack's Snack Bar; Newport Beach at Orange St. to Dana Point at Dana Strand Beach; and Dana Point around Camino Estrella to San Clemente Beach at Las Palmeras. As for water quality on the bayside, most locations within Huntington Harbor and Newport Bay were very good-to-excellent, with the exception of Mothers' Beach in Huntington Harbour and 43rd Street Beach in Newport Bay.

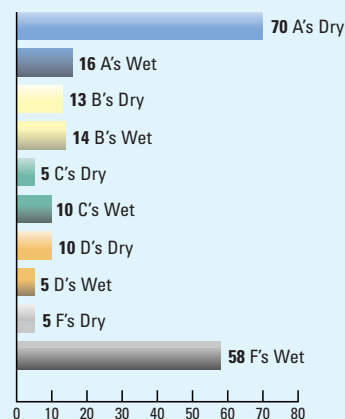
■ = A ■ = B ■ = C ■ = D ■ = F



Dry weather grades



Wet weather grades



Total combined dry and wet weather grades for Orange County.



There were 20 locations that received fair-to-poor water quality marks (five “C’s,” 10 “D’s” and five “F’s”). A further breakdown of the 20 locations reveals that most of the poor water quality could be attributed to two pocket areas and a stretch of beach: there was a pocket of three locations in Huntington State Beach (the power plant at Newland Av., Magnolia Street and Brookhurst—site of the now infamous Huntington Beach closure during the summer of 1999), a stretch of beach (nine straight monitoring locations) from Doheny Beach (north of San Juan Creek) to Dana Point (4000’ from SERRA’s south outfall), and a pocket of three beaches in Dana Point Harbor called the Baby Beaches (west end, buoy line and swim area).

As for wet weather water quality in Orange County, 30 or (29%) of the 103 locations monitored received very good-to-excellent water quality marks (16 “A’s” and 14 “C’s”) compared to 81% during dry weather. There were 73 locations receiving fair-to-poor water quality marks (10 “C’s,” five “D’s” and 58 “F’s”), with 56% of the beaches receiving an “F” during wet weather.

The Huntington State Beach closure varied in number of days and the length of beach closed, but encompassed much of the time period from July 1 to September 4. Although much time, effort and over \$2 million went into source identification of the elevated indicator bacteria densities, only one issue was resolved — the water quality problem was probably not originating from the Orange County Sanitation District’s sewer during August and September. How water quality was so poor in July largely remains a mystery. The speculation as to the source of the problem is a number of storm drains discharging into Talbert Marsh. Currently, an investigation is being conducted of the Santa Ana River and Talbert Marsh as potential sources of pollution to Huntington State Beach.

Unlike any other county, Orange County suffered from a considerable amount of minor sewage spills throughout this past year (April 1999–March 2000) that led to beach closures. Of the approximate 31 sewage spills (which discharged 89,480 gallons of sewage runoff to Orange County beaches), there were 28 “minor” spills (< 10,000 gallons) which made up about 44,480 gallons, and three “major” sewage spills (> 10,000 gallons) making up the remaining 45,000 gallons.



Orange County had 23 more sewage spills that led to closures than any of the three other counties.

One other non-sewage related beach closure lasted three days and was caused by a large quantity of dental needles washing ashore at Huntington City Beach at 17th Street.



There are numerous bills in the state and federal legislature that would help further educate the public on health risks and/or help clean up urban and stormwater runoff polluted waters. This section will highlight a few of these pending bills.

FEDERAL

There are two bills currently in the U.S. Senate that, if passed, would set minimum water quality standards for public beaches nationwide. Recently, both H.R. 999 (introduced by Representative Bilbray, R — San Diego) and S. 522 (introduced by Senator Lautenberg, D — New Jersey), passed through the Senate Environment and Public Works Committee and have been sent to the Senate Floor for consideration. If either bill passes, the U.S. will finally have minimum water quality standards for recreational waters. In addition, both bills have requirements for beach water quality monitoring and public notification programs. Currently, beach water quality monitoring and public notification practices vary considerably, from county to county and state to state, at beaches and other recreational waters across the country. National standards are clearly necessary to ensure that beach water quality monitoring standards and public notification programs adequately protect public health regardless of the location of the beach.

STATE

AB 2492, authored by Assembly Member Sheila Kuehl and sponsored by Heal the Bay, would require the inclusion of numeric limits in municipal



stormwater permits by January 1, 2002, to ensure compliance with water quality standards and the protection of beneficial uses. The bill would also require the State Water Resources Control Board to develop a standardized stormwater monitoring program for industrial and municipal stormwater dischargers by January 1, 2002. The elements of the standardized monitoring program include:

- Standardized methods for collection and analysis of stormwater samples to ensure that all data is consistent and comparable statewide.
- A minimum monitoring program for industrial and municipal stormwater dischargers that must include standard sampling intervals and frequencies; monitoring for specified pollutants; standardized minimum detection limits; annual reporting requirements; and assessments of pollutant loads, the efficacy of Best Management Practices (BMPs) and impacts to receiving waters.
- A requirement that each discharger implement a monitoring program which includes, at a minimum, all components of the minimum monitoring program developed pursuant to this bill by January 1, 2003.
- A requirement that each discharger conduct water quality sampling at least five times per rainy season to provide a meaningful assessment of individual sources and pollutants.

The bill also recognizes that pollution is site-specific. Thus, the bill would prohibit group monitoring by industrial facilities. Under group monitoring programs, it is difficult to assess water quality impacts of individual facilities or the effectiveness of site-specific best management practices.

Submitted in last year's legislature but carried over to this year, AB 885 (authored by Assembly Member Hannah-Beth Jackson and sponsored by Heal the Bay), would require the state to develop minimum water quality standards for septic tanks and leach fields in the coastal zone or adjacent to nutrient- or fecal-bacteria impaired receiving waters on or by January 1, 2002. Also, tougher requirements will be established statewide for onsite sewage treatment systems that are located near waterbodies that are listed on the state's impaired waterbodies list. Other elements of AB 885 include:



- Monitoring requirements for onsite wastewater treatment systems also will be established.
- Requirements for local agencies to regularly inspect onsite sewage treatment systems within the coastal zone and adjacent to impaired waters.
- Authorization for local agencies to impose fees for the inspection of systems and to take enforcement actions against systems that fail to meet performance standards.

Currently, the bill would require all affected onsite sewage treatment systems to comply with the standards not later than January 1, 2003, or one year from the date of the adoption of the standards, whichever is earlier.

AB 1835, authored by state Assembly Members Scott Baugh and Patricia Bates, is designed to provide grants to public agencies to pay for capital costs and specified other costs associated with diverting dry weather flows from storm drains that would otherwise discharge to public beaches to sewage treatment facilities. The State Water Resources Control Board, in consultation with the state's Storm Water Quality Task Force, will be required to administer the grant program, as well as complete a study identifying measures that will reduce or eliminate violations of beach bathing water standards by January 1, 2003.

AB 1946, authored by state Assembly Member Howard Wayne, is designed to reduce the time period of the State Water Board's Annual Beach Postings and Closure survey to a monthly report. The monthly reports would be due prior to the 15th of each month in a specified format, with the annual report due on or before July 30 of each year. The reports would be made available to the public by a variety of means, such as the Internet, fax or mail.



A Review of the Past Year

The U.S. Environmental Protection Agency (EPA) established the BEACH (Beaches Environmental Assessment, Closure, and Health) Program in 1997 with the goal to significantly reduce the risk of waterborne illnesses at the nation's beaches and recreational waters through improvements in recreational water protection programs, risk communication, and scientific advances. Over the past year, the EPA has held two conferences dedicated to beach pollution issues and funded several pilot projects for beaches through their Environmental Monitoring for Public Access and Community Tracking (EMPACT) program. In addition, the EPA completed their second annual survey on beach monitoring and closures and found that nearly 25% of all beaches reported on nationally had an advisory or closure in 1998 due to contamination. The survey results confirmed that a wide variety of water quality standards at beaches are being used across the country to determine if a beach is safe for swimming and that beach monitoring programs vary greatly in design and quality. Although the EPA's BEACH program is a step in the right direction, the survey results highlight the fact that until national bathing water standards are established, many beach monitoring programs across the country will continue to provide inadequate protection of public health.

In 1998, 81% of all beach closures in California were due to storm drains directing contaminated runoff, which often contains elevated levels of bacteria and potentially human pathogens, across the beach and into the surf zone. The length of beach polluted by a flowing storm drain, based on bacteria levels



exceeding the state health standards, is unknown. As a rule, 50-100 yards is currently used to determine how much of the beach around a flowing storm drain is unsafe for swimming. However, storm drain studies in dry weather have indicated that much longer sections of beaches can be impacted by storm drain water.

To address this issue, Heal the Bay is working with the Southern California Coastal Water Research Project (SCCWRP) on a storm drain plume dispersion study. The goal of the study is to develop a predictive model for estimating the length of beach around a flowing storm drain that is unsafe for swimming. This study is the first comprehensive investigation into the key parameters that dictate dispersion of microbiological contamination from storm drains in the surf zone, and is a multi-agency collaboration with the Regional Water Quality Control Board (RWQCB) providing project oversight and the City of Los Angeles' microbiological laboratory providing analytical services. Heal the Bay's role is to collect samples and develop a statistical model of key predictive parameters of the bacteria dispersion along the beach. A minimum of 48 sampling events will be conducted at three contaminated storm drains in Santa Monica Bay. The end product of this study should be an accessible, easy-to-use, predictive tool for lifeguards and health officials to use on a routine basis to assist in determining how much of the beach around a flowing storm drain in Santa Monica Bay is unsafe for swimming.

Authored by Assembly Member Howard Wayne (San Diego) and sponsored by Heal the Bay, AB 538 requires the state to develop a protocol for identifying sources of bacteria at high-use beaches impacted by flowing storm drains. Dr. Michael Stenstrom, a UCLA Civil Engineering professor and one of the leading experts on stormwater in the country, has been contracted by the State Water Resources Control Board to develop the protocol, which will include a decision tree for implementing existing source identification methods based upon the relative risk of potential sources. More importantly, the protocol will identify new tools for source identification, including the potential use of alternative types of indicators of human sewage (such as viruses and chemical markers). The protocol will be a critical tool for the RWQCB and contributing cities to utilize in reducing bacteria loading to L.A. and Ventura County beaches in order to meet the requirements of the coliform Total Maximum Daily Loads (TMDLs)



scheduled for implementation in 2002 and 2003, respectively. As illustrated by the two-month Huntington Beach closure this past summer, with source investigative costs reaching over \$2 million dollars, a statewide protocol for identifying sources of bacteria at beaches is critical to the management of beach contamination in California.

With the program beginning its sophomore year this past April, the bathing water standards program's first year was largely successful. More beaches than ever before were monitored for fecal indicator bacteria. All counties used a similar monitoring program (frequency, indicator bacteria, and public notification procedures). And perhaps most importantly, the health of tens of thousands of swimmers and surfers was protected because all polluted beaches were quickly posted or closed when high bacterial densities were found.

In order to build upon the success of the previous year, the sampling distance from a storm drain must be standardized. Greater guidance from the California State Department of Health Services (CSDHS), the agency responsible for developing and ensuring implementation of the regulations, is needed. For instance, the County of Los Angeles has a monitoring program based on sampling 50 yards from a flowing storm drain compared to the County of San Diego, which monitors water quality at the mouth of the storm drain. This means that an "A" beach in San Diego could be cleaner and safer than an "A" beach in Los Angeles. Agencies know that comparing those two programs is like comparing apples and oranges, but the public does not. Heal the Bay will continue to recommend that a standardized monitoring distance protocol (e.g., 25 yards from a flowing storm drain) be established as soon as possible. Then, beachgoers can be assured that the monitoring information being disseminated by the counties is consistent throughout the state.

Also, Heal the Bay will continue to push agencies to make all monitoring data available. As stated in the regulations, agencies are required to sample once a week and if that sample exceeds a single bacterial threshold, posting of the beach and additional sampling are required. However, this additional data, which is used by the agencies to determine whether or not to open the beach or remove warning signs, is not always made available to the public.



These two simple changes — collect all samples 25 yards from storm drains and make all monitoring data available to the public — can be made easily without any modification to AB 411. The State Health Department should implement these modifications immediately through directed guidance.

The Beach Report Card continues to grow in size and scope to now include the County of San Diego. By adding San Diego County's data (130 monitoring locations) to the Southern California Beach Report Card, Heal the Bay will be grading over 350 beaches.

Beaches in San Onofre, Oceanside, Carlsbad, Encinitas, Cardiff, Solano, Del Mar, La Jolla, Pacific Beach, Coronado and Imperial Beach will be graded, as well as public beaches in portions of Mission Bay and San Diego Bay. Beginning June 2000, the Southern California Beach Report Card will provide weekly water quality information for these locations.

The Beach Report Card web page will continue to provide the following: a Southern California map showing the different participating counties; detailed maps for each participating county; notification on sewage spills and beach closures due to sewage spills; a historical archive of past water quality grades; monitoring locations (represented by dots on the detailed maps) with different colors denoting the grade of the beach (blue— "A"/"B," yellow— "C," red— "D"/"F"); and flashing dots indicating beaches closed due to a sewage spill.)

Recommendations for the Coming Year:

- **Increase Best Management Practices at enclosed beaches to reduce bacterial indicator densities.** Beaches such as Kiddie Beach in Channel Islands Harbor, Mothers' Beach in Marina del Rey, Cabrillo Beach in Los Angeles Harbor, Mothers' Beach in Huntington Harbor and Baby Beach in Dana Point Harbor all received fair-to-poor water quality marks. Whether the pollution problem is due to the lack of substantive tidal circulation — a number of enclosed beaches may have longer bacterial indicator residence times — or the beach's proximity to a pollution source, young beachgoers are far too frequently exposed to unhealthful water quality conditions. It may be that some or all of these beaches need improved tidal circulation. If cost-effective methods for pollution



source abatement or improving tidal circulation cannot be implemented, then perhaps some of these beaches should be closed. One of Heal the Bay's highest priorities for the year is to ensure that these chronically polluted beaches are cleaned up.

- **Advocate the City and County to implement their storm drain diversion projects.**

The reason for implementing a storm drain diversion program — protecting the beachgoing public's health by eliminating pathogen sources to the beach — has apparently been lost in bureaucracy and arguments over economics. Thought to be an accomplishment four years ago when Mayor Riordan made the commitment of diverting all of the City of Los Angeles' storm drains, today this program has failed to live up to its promise. Over the past four years, the City of Los Angeles has implemented three storm drain diversions: Thornton Av., Venice Pavilion, and the Bel Air Bay Club. The County of Los Angeles has fared better, diverting five storm drains by this June: Alamitos Bay in Long Beach, Herondo in Redondo Beach, Ashland Av. in Santa Monica, Pershing Av. in Playa del Rey, and Brooks Av. in Venice.

- **Expand media coverage of the Beach Report Card through various outlets throughout Southern California (television, radio, print, Internet).** Heal the Bay's goal is for every newspaper in the region to include local Beach Report Card information. Also, Heal the Bay will increase outreach efforts to the Spanish-speaking community in order to educate a larger percentage of the beach-going population in Southern California.

- **Incorporate volunteer beach cleanup data into the Beach Report Card.** Heal the Bay has managed Los Angeles County's Adopt-A-Beach program (volunteer beach cleanups) for over five years. Currently, over 100 volunteer groups clean beaches along Santa Monica Bay. Heal the Bay will attempt to incorporate some of the data from this effort in the report card. The additional Adopt-A-Beach information should provide updates on the cleanliness of popular beaches in Los Angeles County.

- **Encourage monitoring agencies to monitor water quality at popular beaches year-round (beyond the AB 411 required dates of April-October).** Year-round monitoring provides those beachgoers, namely surfers who frequent the beach due to winter swells, with important information about water quality.



- **Advocate for consistent implementation of AB411 monitoring and public notification programs.** For instance, the County of Los Angeles has a monitoring program based on sampling 50 yards from a flowing storm drain compared to the County of San Diego, which monitors water quality at the mouth of the storm drain. This means that a “C” beach in San Diego could be cleaner and safer than an “A” beach in Los Angeles. Agencies know that comparing those two programs is like comparing apples and oranges, but the public does not. Heal the Bay will continue to recommend that a standardized monitoring distance protocol (e.g., 25 yards from a flowing storm drain) be established as soon as possible.



This report and the entire Beach Report Card program would not be possible without the cooperation and professionalism of the staff members at the many monitoring agencies throughout Southern California. These agencies include the County of Santa Barbara, Environmental Health Services; the County of Ventura, Environmental Health Division; the City of Long Beach, Department of Health & Human Services, Division of Environmental Health; the County of Orange, Department of Public Health, Division of Environmental Health and the Orange County Sanitation Districts. In particular, Charlie McGee at the Orange County Sanitation Districts has been especially helpful in analysis of the data. Heal the Bay would especially like to thank the City of Los Angeles Environmental Monitoring Division, the Los Angeles County Department of Health Services and the Los Angeles County Sanitation Districts for their cooperation since the inception of this pioneering program 10 years ago. Heal the Bay also looks forward to what hopefully will be a similarly productive relationship with the County of San Diego, Department of Environmental Health.

Public awareness of the Beach Report Card program owes a large part to the generosity of many in the ocean-enthusiast and public education communities, including the support of local retail stores and marine aquaria who post Beach Report Card dry-erase boards on their premises.

A special thank you to the Ford Motor Company for their generous support in funding the Beach Report Card program and the publication of this report.



Each threshold is based on the prescribed standards set in the California Department of Health Services' Beach Bathing Water Standards. The magnitude of the water quality threshold exceedance and laboratory variability was addressed by the inclusion of standard deviations in setting the thresholds. The standard deviations used were developed during the 1998 laboratory inter-calibration study led by the Southern California Coastal Waters Research Project that involved over 20 shoreline water quality monitoring agencies in Southern California.

Group:	1 T - 1 s.d. ¹	2 T + 1 s.d.	3 > T + 1 s.d.	4 very high risk
Total Coliform	6,711-9,999	10,000² -14,900	>14,900	na
Fecal Coliform ³	268-399	400 -596	>596	na
Enterococcus	70-103	104 -155	>155	na
Total to Fecal Ratio (when: Total > 1,000)	10.1-13	7.1-10	2.1-7	< 2.1

1) s.d.—standard deviation

2) Bold numbers are the State Health Department standards for a single sample.

3) Orange County measures for *Escherichia coli* (*E.coli*). Although not one of the monitoring criteria within AB 411, *E.coli* is considered, in this case, to represent 80% of fecal coliforms. Heal the Bay used Orange County's *E.coli* number and multiplied it by 1.25 to determine a fecal coliform number. Heal the Bay does not use this number to determine a total to fecal ratio.

The number of points subtracted from 100 for total coliform, fecal coliform, and enterococcus are: **6 points** for bacterial densities falling in group one (threshold minus one standard deviation or T – 1 s.d.), **18 points** for group two (T + 1 s.d.), and **24 points** for group three (indicator densities > T + 1 s.d.). The point system for total to fecal ratio is: **7 points** for group one, **21 points** for group two, **35 points** for group three, and **42 points** for group four (very high health risk).



Exceedance of the total to fecal ratio threshold leads to lower grades because exposure to water with low ratios causes an even higher incidence of a variety of adverse health effects relative to the health risk associated with the other bacterial indicators.

Group:	1 T - 1 s.d. ¹	2 T + 1 s.d.	3 > T + 1 s.d.	4 very high risk
Total Coliform Fecal Coliform Enterococcus:	6	18	24	
Total to Fecal Ratio: (when: Total > 1,000)	7	21	35	42

1) s.d.—standard deviation

These points are added to obtain a subtotal for that week. The point subtotal for the most current week's worth of data is multiplied by 1.5 in order to give it more weight. Then, the points from the previous three weeks are added in for an overall point total. The total number of points for the 28-day period is divided by the average number of samples collected in a week. This number is then subtracted from the original 100 points to obtain a grand total from which a letter grade is derived.

The grading system is as follows:

Grade	Points
A+ =	100
A =	90-99
B =	80-89
C =	70-79
D =	60-69
F =	0-59



1999–2000 Beach Report Card Grades By County

Santa Barbara County	Dry	Wet
Guadalupe Dunes, south of Santa Maria River	A	A
Ocean Beach, at Santa Ynez River	C	F
Jalama Beach, at Jalama Creek	F	F
Gaviota State Beach, at Cañada de las Cruces	A	F
Arroyo Quemada	F	F
Refugio State Beach, at Cañada del Refugio	C	F
El Capitan State Beach, at Cañada del Capitan	A	D
Sands, at Coal Oil Point	A	B
Goleta Beach — 200 yds. east of the pier	B	F
Hope Ranch Beach, at Las Palmas Creek	C	F
Arroyo Burro Beach, at Arroyo Burro Creek	D	F
Leadbetter Beach, at Honda Creek	B	F
East Beach, at Mission Creek	F	F
East Beach, at Bath House	B	ns
East Beach, at Sycamore Creek	B	F
Butterfly Beach	A	F
Hammond's Beach, at Montecito Creek	B	F
Carpinteria City Beach — projection of Linden Av.	A	D
Carpinteria State Beach, at Carpinteria Creek	A	F
Rincon Beach, at Rincon Creek	A	F



Ventura County	Dry	Wet
Rincon Beach — 50 ft. south of creek mouth	B	F
Rincon Beach — 100 yds. south of creek mouth	B	F
Rincon Beach, at the end of the footpath to beach	B	F
La Conchita Beach, at Ocean View Rd. drain	A+	A+
Mussel Shoals Beach — 100 yds. south of pier	A+	A+
Oil Piers Beach — south of Mobil Pier Rd.	A	C
Hobson County Park — across from the stairs	A	A
Rincon Parkway North, at Javon Canyon	A+	F
Faria County Park, at Padre Juan Creek	A	F
Mandos Cove	A	D
Solimar Beach — north, at A Lease Canyon	A	A+
Solimar Beach — south, mid-colony (near drain)	A	F
Emma Wood State Beach — 50 yds. south of 1st drain	A	B
Seaside Wilderness Park — 400 yds. north of Ventura River	A+	A+
Surfer's Point, at Seaside	A	F
Promenade Park — projection of Figueroa St.	B	F
Promenade Park — projection of Paseo del Playa	A	F
Promenade Park — projection of Oak St.	B	F
Promenade Park — projection of California St.	B	F
San Buenaventura Beach — at Kalorama drain	A	F
San Buenaventura Beach — at San Jon drain	B	F
San Buenaventura Beach — at Dover Ln. drain	A	A
San Buenaventura Beach — Weymouth Ln. drain	A	A
Marina Park — north of the playground	A	F
Peninsula Beach — upcoast from the south jetty	A	F
South Jetty Beach	A	C
Surfer's Knoll	A	A



Ventura County (continued)	Dry	Wet
McGrath State Beach — 1/2 mi. north of Gonzales Rd.	A	F
McGrath State Beach — projection of Gonzales Rd.	A	F
McGrath State Beach — Go Cart track	A	F
Mandalay County Park — projection of 5th St.	A+	F
Mandalay County Park — projection of Channel Way	A	F
Mandalay County Park — projection of Outrigger Way	A+	F
Oxnard Shores — projection of Amalfi Way	A+	D
Oxnard State Beach — projection of Falkirk Av.	A+	D
Oxnard State Beach — projection of Starfish Dr.	A	D
Hollywood Beach — projection of La Crescenta St.	B	D
Hollywood Beach — projection of Los Robles St.	A	D
Channel Islands Harbor — Hobie Beach at Lakeshore Dr.	F	F
Channel Islands Harbor — Beach Park at Hollywood Bl.	F	F
Silverstrand — projection of San Nicholas Av.	A	B
Silverstrand — projection of Santa Paula Dr.	A	A+
Silverstrand — La Jenelle (at Sawtelle Av.)	A+	B
Port Hueneme Beach Park — north of fishing pier	A+	A+
Ormond Beach — 50 yds. south of J St. drain	C	A+
Ormond Beach — 50 yds. north of Oxnard Industrial drain	C	F
Ormond Beach — projection of Arnold Rd.	A	A+
Point Mugu Beach	A	C
Thornhill Broome Beach, at La Jolla Canyon	A+	A+
Sycamore Cove Beach — 50 yds. south of Sycamore Creek	A+	A+
Deer Creek — 50 yds. south of creek	A+	A+
County Line Beach — 50 yds. south of creek	A	A
Staircase Beach	B	A+



Los Angeles County	Dry	Wet
Leo Carrillo Beach	A	C
Nicholas Beach — 33 yds. west of lifeguard tower	A	F
Broad Beach	A	F
Trancas Beach entrance	A	D
Westward Beach	A	F
Paradise Cove	A	F
Latigo Canyon Creek entrance	B	F
Corral Beach	A	F
Surfrider Beach, at Malibu Colony fence	A	F
Surfrider Beach (second point) — weekly	D	F
Surfrider Beach (breach location) — daily	F	F
Malibu Pier — 50 yds. east	B	F
Big Rock Beach	D	F
Topanga State Beach	A	F
Will Rogers State Beach — PCH and Sunset Bl., 400 yds. east	A	F
Will Rogers State Beach — east of Bel Air Bay Club	A	F
Will Rogers State Beach — Pulga Canyon storm drain, 50 yds. east	A	F
Will Rogers State Beach — Temescal Canyon	B	F
Will Rogers State Beach — Santa Monica Canyon	D	F
Santa Monica Beach — projection of San Vicente Bl.	A	F
Santa Monica Beach — projection of Montana Av.	A	F
Santa Monica Beach — projection of Arizona Av.	A	F
Santa Monica Municipal Pier — 50 yds. downcoast	D	F
Santa Monica Beach — at Pico/Kenter storm drain, 50 yds. south	B	F
Santa Monica Beach — projection of Strand St.	A	F
Ocean Park Beach — projection of Ashland Av., 50 yds. north	C	F
Ocean Park Beach — projection of Ashland Av., 50 yds. south	B	F



Los Angeles County <i>(continued)</i>	Dry	Wet
Venice Beach — projection of Brooks Av.	A	F
Venice Beach — projection of Windward Av., 50 yds. north	A	C
Venice Fishing Pier — 50 yds. south	A	C
Venice Beach — projection of Topsail St.	A	F
Mothers' Beach — Marina del Rey, playground	D	F
Mothers' Beach — Marina del Rey, south end of swim area	D	F
Mothers' Beach — Marina del Rey, north end of swim area	C	F
Basin H — boat launch, Marina del Rey	F	F
Dockweiler Beach — 50 yds. south of Ballona Creek	B	F
Dockweiler Beach — projection of Culver Bl.	A	F
Dockweiler State Beach — south of D&W jetty	A	F
Dockweiler State Beach — projection of Imperial Hwy., 50 yds. north	A	F
Dockweiler State Beach — opposite Hyperion Sewage Treatment Plant	B	D
Dockweiler Beach — projection of Grand Av.	B	F
Manhattan Beach — projection of 40th St.	A	A
Manhattan Beach Pier — 50 yds. south	A	C
Hermosa City Beach — projection of 26th St.	A+	B
Hermosa Beach Pier — 50 yds. south	A	B
Herondo Street storm drain — 50 yds. north	A	F
Redondo Municipal Pier — 50 yds. south	B	C
Redondo Beach — projection of Topaz St., north of jetty	A	B
Redondo Beach — projection of Avenue I	A	D
Malaga Cove, Palos Verdes Estates — daily	A	B
Malaga Cove, Palos Verdes Estates — weekly	A+	A
Palos Verdes (Bluff) Cove, Palos Verdes Estates	A+	A+
Long Point, Rancho Palos Verdes	A	A
Abalone Cove Shoreline Park	A+	A+

(continued)



Los Angeles County <i>(continued)</i>	Dry	Wet
Portuguese Bend Cove, Rancho Palos Verdes	A	A
Royal Palms State Beach	A	B
Wilder Annex, San Pedro	A	A
Cabrillo Beach, oceanside	A	B
Cabrillo Beach — harborside at boat launch	F	F
Cabrillo Beach — harborside at lifeguard tower	C	F
Avalon Beach — btwn. Tuna Club & Busy Bee Restaurant	C	A+
Avalon Beach — adjacent to Busy Bee Restaurant	A	F
Avalon Beach — 50 yds. north of pier	C	F
Avalon Beach — underneath pier	F	F
Avalon Beach — 50 yds. south of pier	A	F
Avalon Beach — south end	A	F
Long Beach City Beach — projection of 3rd Pl.	F	F
Long Beach City Beach — projection of 5th Pl.	A	F
Long Beach City Beach — projection of 10th Pl.	A	F
Long Beach City Beach — projection of 16th Pl.	A	F
Long Beach City Beach — projection of Molino Av.	C	F
Long Beach City Beach — projection of Coronado Av.	A	F
Long Beach City Beach — projection of 36th Pl.	B	F
Belmont Pier — westside of the pier	B	F
Belmont Pier — middle of the pier	A	F
Belmont Pier — eastside of the pier	B	F
Long Beach City Beach — projection of Prospect Av.	A	F
Long Beach City Beach — projection of Granada Av.	A	F
Long Beach City Beach — projection of 54th Pl.	B	F
Long Beach City Beach — projection of 55th Pl.	A	F
Long Beach City Beach—projection of 62nd Pl.	A	F



Los Angeles County <i>(continued)</i>	Dry	Wet
Long Beach City Beach—projection of 72nd Pl.	A	F
Alamitos Bay — 56th Pl.	A	F
Alamitos Bay — 1st & Bayshore	A	F
Alamitos Bay — Shore float	A	F
Alamitos Bay — Mothers' Beach, Los Cerritos Channel	A+	F
Alamitos Bay — 2nd St. Bridge & Bayshore	B	F



Orange County	Dry	Wet
Seal Beach — projection of 1st St.	D	F
Seal Beach — projection of 8th St.	C	F
Seal Beach — projection of 14th St.	A	D
Surfside Beach — projection of Sea Way	A+	B
Surfside Beach — projection of Broadway	A+	B
Bolsa Chica State Beach — south of Warner Av.	A	B
Bolsa Chica State Beach, at Lifeguard HQ	A	C
Huntington City Beach — Bluffs, at Seapoint Av.	A	B
Huntington City Beach — projection of 17th St.	A	D
Huntington City Beach — projection of Jack's Snack Bar	A	C
Huntington State Beach — Power Plant, so. of Newland St.	D	B
Huntington State Beach — projection of Magnolia St.	D	D
Huntington State Beach — projection of Brookhurst	C	F
Santa Ana River Mouth, north side	A	F
Newport Beach — projection of Orange St.	A	F
Newport Beach — projection of 52nd/53rd St.	A	F
Newport Beach — projection of 38th St.	A	F
Newport Beach — projection of 15th/16th St.	A	C
Balboa Beach — Balboa Pier, north side	A	C
Balboa Beach — The Wedge	A	C
Mothers' Beach, Huntington Harbour	C	F
Trinidad Lane Beach, Huntington Harbour	B	D
Sea Gate, Huntington Harbour	A	A+
Humboldt Beach, Huntington Harbour	A	B
Davenport Beach, Huntington Harbour	B	F
11th Street Beach, Huntington Harbour	B	F
Newport Dunes — north, Newport Bay	B	F



Orange County (continued)	Dry	Wet
Newport Dunes — east, Newport Bay	A	F
Newport Dunes — middle, Newport Bay	A	F
Newport Dunes — west, Newport Bay	A	F
Bayshore Beach, Newport Bay	B	F
Via Genoa Beach — Lido Isle, Newport Bay	A	F
Lido Yacht Club Beach — Lido Isle, Newport Bay	A	F
Garnet Avenue Beach — Balboa Island, Newport Bay	A	F
Sapphire Avenue Beach — Balboa Island, Newport Bay	A	F
Abalone Avenue Beach — Balboa Island, Newport Bay	A	F
Park Avenue Beach — Balboa Island, Newport Bay	A	F
Onyx Avenue Beach — Balboa Island, Newport Bay	A	F
Ruby Avenue Beach — Balboa Island, Newport Bay	A+	F
Grand Canal — Balboa Island, Newport Bay	A	F
43rd Street Beach, Newport Bay	F	F
38th Street Beach, Newport Bay	B	F
19th Street Beach, Newport Bay	B	F
15th Street Beach, Newport Bay	A	F
10th Street Beach, Newport Bay	A	F
Alvarado/Bay Isle Beach, Newport Bay	A	F
N Street Beach, Newport Bay	A	F
Harbor Patrol Beach, Newport Bay	B	F
Rocky Point Beach, Newport Bay	A	F
Corona del Mar Beach — 200 yds. south of breakwater	A+	A
Corona del Mar Beach — daily	A	A
Corona del Mar — Little Corona Beach, at Poppy	A	B
Pelican Point	A+	A
Crystal Cove — daily	A	A+

(continued)



Orange County <i>(continued)</i>	Dry	Wet
Crystal Cove, at Los Trancos Canyon	A	B
Muddy Creek Beach	A+	A
El Morro Beach, at El Morro Canyon	A+	D
Emerald Bay — mid-cove	A	B
Laguna Beach — Crescent Bay Beach	A	A+
Laguna Beach — Laguna Main Beach	A	B
Laguna Beach — projection of Laguna Hotel	A	F
Laguna Beach — Projection of Bluebird Canyon	A	F
Laguna Beach — Victoria Beach, at Dumond Dr.	A	F
Laguna Beach — Blue Lagoon, near Lagunita Bl.	A	C
Laguna Beach — Treasure Island Pier (weekly)	A	A
Laguna Beach — Treasure Island Pier	A	A+
Laguna Beach — Treasure Island Sign	A	A+
South Laguna — Aliso Creek Beach, north	A	A+
South Laguna — Aliso Creek Beach, middle	B	F
South Laguna — Aliso Creek Beach, south	A	F
South Laguna — Camel Point, at Camel Point Dr.	A+	C
South Laguna — Table Rock, at Table Rock Dr.	A	B
South Laguna — Laguna Lido Apt.	A+	A
South Laguna — 9th St., 1000 Steps Beach	A	A
Three Arch Bay — mid-cove	A	A
Monarch Beach — north	A	C
Monarch Beach — south	B	B
Salt Creek Beach	A	C
Dana Point — Dana Strand Beach	A	B
Dana Point — Marine Institute Beach	A+	C
Dana Point — North Beach, Doheny (weekly)	D	F

(continued)



Orange County (continued)	Dry	Wet
Dana Point — North Beach, Doheny	F	F
Dana Point — Doheny Beach, north of San Juan Creek	C	F
Dana Point — San Juan Creek, ocean interface	F	F
Dana Point — Doheny Beach, south of San Juan Creek	F	F
Dana Point — 1000' south of SERRA outfall	D	F
Dana Point — 2000' south of SERRA outfall	D	F
Dana Point — 3000' south of SERRA outfall	F	F
Dana Point — 4000' south of SERRA outfall	D	F
Dana Point — 5000' south of SERRA outfall	B	F
Dana Point — 7500', projection of Camino Estrella	B	F
Dana Point — 10000', 35505 Beach Road	A	F
San Clemente — 14000', end of Beach Road	C	F
San Clemente — 20000', projection of Avenida Pico	A	F
San Clemente — Lifeguard Building, north of the Pier	A	F
San Clemente — Avenida Calafia	A	F
San Clemente — Las Palmeras	A+	B
Baby Beach, Dana Point Harbor — west end	D	F
Baby Beach, Dana Point Harbor — buoy line	D	F
Baby Beach, Dana Point Harbor — swim area	D	F
Baby Beach, Dana Point Harbor — east end	B	F
Guest Dock — end, Dana Point Harbor	A	A+
Youth Dock, Dana Point Harbor	A	A+



Credits

PRODUCTION: Peter Tatikian

DATA COMPILATION AND ANALYSIS: James Alamillo

REPORT RESEARCH AND COPY: James Alamillo


EDITOR: Barb Dehgan

TECHNICAL EDITORS: Mark Gold, D. Env., Mitzy Taggart

DESIGN: Chris Prenter

SPANISH TRANSLATION: Claudia Prenter, Gabriela Santa Maria

WEB SITE MANAGEMENT: Tom Fleming

 Printed on recycled paper.